Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 76 of the Commission's Rules to Extend Interference Protection to the Marine and Aeronautical Distress and Safety Frequency 406.025 MHz	)	MB Docket No. 03-50

COMMENTS OF THE NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION

The National Cable & Telecommunications Association ("NCTA") hereby submits its comments in the above-captioned proceeding. NCTA is the principal trade association of the cable television industry, representing operators serving over 90 percent of the nation's cable customers. These companies also provide high-speed access to the Internet and other services. NCTA's members also include cable program networks and companies that provide equipment and services to the industry.

In the Notice of Proposed Rulemaking, the Commission proposes to modify the cable signal leakage rules, Section 76.616, to include new international digital search and rescue frequency 406.025 MHz within the prohibition on cable system operation near these emergency frequencies. Currently, most Emergency Position Indicating Radio Beacons (EPIRBs) and Emergency Locator Transmitters (ELTs) use analog signals operating on 121.5 MHz and 243.0 MHz. The Commission's rules prohibit the transmission of carriers or other signal components capable of delivering peak power levels equal to or greater than 10 microwatts (10^{-5} watts) at

any point in a cable television system within 100 kHz of the frequency 121.5 MHz and within 50 kHz of the frequency 243.0 MHz.

Newer EPIRBs and ELTs use digital signals and operate on 406.025 MHz. The FCC authorized the use of this frequency for EPIRBs in the maritime radio services, aviation radio services, and for Personal Locator Beacons (PLBs). As the Notice points out, the U.S. Coast Guard reports that such digital EPIRBs save more lives and account for fewer false alerts than the analog EPIRBs because of the ability of rescue personnel to locate the emergency signal more efficiently from the additional registration information contained in the 406.025 MHz signal.[1]

NCTA appreciates the Commission's desire to assist lifesaving efforts by protecting new international digital marine and aeronautical distress emergency beacons from harmful interference. The cable industry recognizes that the United States and the international community are transitioning EPIRBs and ELTs to 406.025 MHz and deploying new digital devices at an increasing rate. However, NCTA believes that imposing new restrictions on cable operations at this time is premature, given (1) the potential adverse impact on cable system use of digital signals as cable operators transition from analog to digital; (2) the effectiveness of current leakage rules in preventing interference to the 406.025 MHz frequency; and (3) the nascent state of deployment of new digital EPIRBs and ELTs.

First, in seeking to protect emergency signals operating at 406.025 MHz, the Commission proposes forbidding the transmission of carriers or other signal components capable of delivering peak power levels equal to or greater than 10 microwatts (10^{-5} watts) at any point in a cable television system within 100 kHz of 406.025 MHz. The Commission concludes that

[1] Notice, 68 Fed. Reg. 15419, 15420 (March 31, 2003).

"prohibiting cable television operation within this limited guard band will not substantially impact current cable television operation, as the closest cable television frequency in use is the color carrier of cable channel 54, which is approximately 800 kHz from 406.025 MHz."[2] This assumption is correct with respect to *analog* channels, however, the proposal may have a negative effect on a cable operator's ability to operate a quadrature amplitude modulation (QAM) *digital* signal on channel 54.

For example, assume the highest level for an analog video signal is operated at a level of +48 dBmV and that QAM digital signals operate no higher than -6 dB with respect to the analog video visual carrier (at that level, the average power of the QAM signal is approximately the same as the average power of the video signal). Under these circumstances, the QAM signal will be at a level of 42 dBmV. Assuming a 256 QAM system, that energy will be spread uniformly across a bandwidth of about 5.3 MHz, making the energy density -25.3 dBmV/Hz. Therefore, the total energy in a band extending 100 kHz either side of 406.025 MHz will be 27.7 dBmV. This is within approximately 1dB of the proposed limit of 10 microwatts, effectively preventing the deployment of equipment which may be required to operate at higher power levels.

Taking the above example, the proposed rule may preclude cable operators from utilizing higher orders of modulation, such as 1024 QAM, which are being contemplated by some cable companies.[3] Such technology would be limited to a level no higher than -6 dB with respect to the analog video visual carrier. Higher order modulation techniques allow cable operators to make more efficient use of the bandwidth within their cable plants for the deployment of additional services to their customers. As cable operators migrate from analog to digital

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[2] Id.

[3] "Cable Eyes a Boost to 1024 QAM," Multichannel News, January 6, 2003 at 27-30.

technology, the inability to use even one channel for digital deployment affects the roll-out of new services. At 64 QAM, for example, one channel yields approximately 8 standard definition video signals. At 256 QAM, a single channel represents 12 standard definition video signals, and at 1024 QAM, an operator could possibly yield as many as 18 standard definition video signals.

Ironically, the Commission proposes to impose new leakage requirements that will adversely affect the cable systems that are *least* likely to cause harmful interference – i.e. upgraded, digital cable systems. New restrictions on peak power levels will inhibit such operators' ability to offer new services by precluding them from reclaiming channel 54. Surely this is not what the Commission intends, particularly where such systems are designed to provide a high level of protection against interference.

Second, there is no evidence of the need to restrict peak power levels on cable systems at this time in order to prevent harmful interference to emergency beacons operating at 406.025 MHz. Today's modern cable systems utilize state-of-the-art equipment, which allow for liberal use of spectrum in a closed environment without causing harmful interference. The Commission's existing signal leakage rules require cable operators to maintain the integrity of their systems by taking specific measurements and conducting specific tests on a regular basis in order to meet certain performance criteria.[4] This compliance scheme ensures that cable systems do not unintentionally radiate signals that may interfere with aeronautical communications receivers – including at 406.025 MHz.

[4] 47 C.F.R. § 76.611.

Given the existing signal leakage performance criteria which govern cable operations, NCTA believes it is unnecessary to impose additional constraints on systems in order to protect 406.025 MHz emergency beacons. Adequate protection is already afforded such devices without further restricting peak power levels equal to or greater than 10 microwatts at any point in the cable television system within 100 kHz of 406.025 MHz.

Lastly, the cable industry fully appreciates the importance of ensuring that the benefits of digital EPIRBs and ELTs – in terms of saving lives and avoiding false alerts – are not hampered by harmful interference from other users of radio spectrum, such as cable systems. In the event such interference occurs or appears likely to occur, NCTA would endorse new rules limiting peak power to appropriate levels in cable system operations. However, as the Commission states, the United States and the international community are still transitioning to the exclusive use of the 406.025 MHz frequency for emergency uses. Given the nascent deployment of such equipment, and the lack of evidence of harmful interference under the existing signal leakage rules, we believe it is premature to impose new rules affecting cable operators at this time.

CONCLUSION

For the foregoing reasons, NCTA requests the Commission to refrain from imposing new requirements on cable systems with respect to new international digital emergency beacons operating on 406.025 MHz.

Respectfully submitted,

/s/ Daniel L. Brenner

Daniel L. Brenner
Loretta Polk
Counsel for the National Cable & Telecommunications Association
1724 Massachusetts Avenue, NW
Washington, D.C. 20036-1903
(202) 775-3664

Andy Scott
Senior Director, Engineering

April 30, 2003

April 30, 2003